

**Notice of Allowability**

Application No.

10/586,106

Applicant(s)

SONG ET AL.

Examiner

Art Unit

DOMINIC E. REGO

2618

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/27/2010.
2. ☒ The allowed claim(s) is/are 1-5,8,9 and 14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                                                                |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 5. <input type="checkbox"/> Notice of Informal Patent Application                                              |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>11/02/2010</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                                            |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                           |
|                                                                                                            | 9. <input type="checkbox"/> Other _____.                                                                       |

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Adam M. Kaplan on 11/02/2010.

The application has been amended as follows:

**Claim 1** "An antenna system monitor of a base station, comprising:

a radio communication module for receiving radio data including a first measurement value and a second measurement value of the antenna system of the base station;  
a message parser for parsing the radio data to parse a base station identifier and measurement information;

a base station information database for storing identifiers of base stations to be monitored, and status information of the base stations;

a base station monitor for using the first and second measurement values to calculate factors of the base stations; and

a measured result modifier for using status information of the base station information database corresponding to the base station identifier and modifying the calculated factors" has been replaced with the following amended claim 1.

1. (Currently amended) An antenna system monitor of a base station, comprising:
  - a radio communication module for receiving radio data including a first measurement value and a second measurement value of the antenna system of the base station;
  - a message parser for parsing the radio data to parse a base station identifier and measurement information;
  - a base station information database for storing identifiers of base stations to be monitored, and status information of the base stations;
  - a base station monitor for using the first and second measurement values to calculate factors of the base stations; and
  - a measured result modifier for using status information of the base station information database corresponding to the base station identifier and modifying the calculated factors, wherein the measured result modifier comprises:
    - a eliminator for eliminating a maximum value and a minimum value from among stored voltage standing wave ratios (VSWRs);
    - an average calculator for calculating a calculated average VSWR that is an average of the VSWRs;
    - a superimposed value searcher for searching for a superimposed value from among the VSWRs; and
    - a weight assignor for assigning a weight to a maximum superimposed value according to a result provided by the superimposed value searcher.

**Claim 3**, "The antenna system monitor of claim 2, wherein the factor of the base station includes a transmitted voltage standing wave ratio and a received (VSWR)" has been replaced with the following amended claim 3.

3. (Currently amended) The antenna system monitor of claim 2, wherein the factor of the base station includes a transmitted voltage standing wave ratio and a received voltage standing wave ratio (VSWR).

**Claim 4**, "The antenna system monitor of claim 3, wherein the radio data include a plurality of first measurement values and second measurement values, information on a number of measurement times, information on an order of measurements, and a caller number" has been replaced with the following amended claim 4.

4. (Currently amended) The antenna system monitor of claim 3, wherein the radio data include at least one first measurement value and at least one second measurement value, information on a number of measurement times, information on an order of measurements, and a caller number.

**Claim 5**, "The antenna system monitor of claim 4, wherein the base station monitor comprises:

Art Unit: 2618

a VSWR calculator for using the respective first measurement value and second measurement value to calculate a VSWR;

data storage unit for storing the calculated counter for controlling a calculation number of the VSWR; and

final VSWR calculator for outputting a final by the measured result modifier" has been replaced with the following amended claim 5.

5. (Currently amended) The antenna system monitor of claim 4, wherein the base station monitor comprises:

a VSWR calculator for using the at least one first measurement value and the at least one second measurement value to calculate a VSWR;

data storage unit for storing the calculated counter for controlling a calculation number of the VSWR; and

final VSWR calculator for outputting a final VSWR by the measured result modifier.

6-7. (Canceled)

**Claim 8**, "The antenna system monitor of claim 7, wherein the measured result modifier uses base station information stored in the base station information database to increase or decrease the calculated averaged VSWR to thus perform modification" has been replaced with the following amended claim 8.

8. (Currently amended) The antenna system monitor of claim 1, wherein the measured result modifier uses base station information stored in the base station information database to increase or decrease the calculated averaged VSWR to thus perform modification.

**Claim 9**, “The antenna system monitor of claim 1, further comprising:

a display for displaying the calculated final a communication interface for transmitting the calculated final VSWR to an external device; and

an alarm unit for generating an alarm signal when the final VSWR is greater than a predetermined threshold value” has been replaced with the following amended claim 9.

9. (Currently amended) The antenna system monitor of claim 1, further comprising:

a display for displaying a calculated final VSWR;

a communication interface for transmitting the calculated final VSWR to an external device; and

an alarm unit for generating an alarm signal when the calculated final VSWR is greater than a predetermined threshold value.

10-13. (Canceled)

Art Unit: 2618

**Claim 14**, "A method for measuring and monitoring an antenna system of a base station in a mobile communication system, comprising:

using an antenna system measurer installed in a base station antenna and measuring a power of a progressive wave and a power of a reflected wave;

transmitting information including measurement values and measurement times of the progressive wave and the reflected wave and base station identifiers in a radio data format to a monitoring server;

allowing the monitoring server to receive the radio data, parse the message, and search information on the corresponding base station from a base station information database;

using the transmitted measurement values to calculate a voltage standing wave ratio (VSWR) of the base station; and

modifying the calculated VSWR according to searched base station information when modification is needed" has been replaced with the following amended claim 14.

14. (Currently amended) A method for measuring and monitoring an antenna system of a base station in a mobile communication system, comprising:

using an antenna system measurer installed in a base station antenna and measuring a power of a progressive wave and a power of a reflected wave;

transmitting information including measurement values and measurement times of the progressive wave and the reflected wave and base station identifiers in a radio data format to a monitoring server;

Art Unit: 2618

allowing the monitoring server to receive the radio data, parse the message, and search information on the corresponding base station from a base station information database;

using the transmitted measurement values to calculate a voltage standing wave ratio (VSWR) of the base station, wherein calculating the VSWR includes:

calculating a plurality of calculated VSWRs;

eliminating a maximum value and a minimum value from among the calculated VSWRs; and

calculating an average of the calculated VSWRs without the maximum value and the minimum value;

searching superimposed values from among the calculated VSWRs; and

assigning a weight to a superimposed VSWR corresponding to the superimposed value; and

modifying the VSWR according to searched base station information when modification is needed.

15-16. (Canceled)

(End of Amendment).



***Allowable Subject Matter***

2. Claims 1-5,8,9, and 14 are allowed. Note that allowable elements of claims 6-7 have been added to independent claim 1 and claims 15-16 have been added to claim 14.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOMINIC E. REGO whose telephone number is (571)272-8132. The examiner can normally be reached on Monday-Friday, 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dominic E Rego/  
Examiner, Art Unit 2618  
Tel 571-272-8132